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=> file agricola biosis
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FILE 'AGRICOLA' ENTERED AT 11:48:11 ON 02 JAN 2003

FILE 'BIOSIS' ENTERED AT 11:48:11 ON 02 JAN 2003
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=> s (glucanase (6a) (nucleic or dna# or cdna# or gene#)) (p) (fung? or bacteri?)
L1 150 (GLUCANASE (6A) (NUCLEIC OR DNA# OR CDNA# OR GENE#)) (P) (FUNG? OR BACTERI?)

=> dup rem l1
PROCESSING COMPLETED FOR L1
L2 112 DUP REM L1 (38 DUPLICATES REMOVED)

=> d ti 1-112

L2 ANSWER 1 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Inhibition of the plastidic ATP/ADP transporter protein primes potato tubers for augmented elicitation of defense responses and enhances their resistance against Erwinia carotovora.

L2 ANSWER 2 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Cloning and expression of the exo-beta-D-1,3-glucanase gene (exgS) from Aspergillus saitoi.

L2 ANSWER 3 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Cloning and expression of an endo-1,6-beta-D-glucanase gene (neg1) from Neurospora crassa.

L2 ANSWER 4 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Aspartyl protease from Trichoderma harzianum CECT 2413: Cloning and characterization.

L2 ANSWER 5 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Cloning and analysis of CoEXG1, a secreted 1,3-beta-glucanase of the yeast biocontrol agent Candida oleophila.

L2 ANSWER 6 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Isolation and biochemical characterization of an endo-1,3-beta-glucanase from Streptomyces sioyaensis containing a C-terminal family 6 carbohydrate-binding module that binds to 1,3-beta-glucan.

L2 ANSWER 7 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Changes in beta-1,3-glucanase mRNA levels in peach in response to treatment with pathogen culture filtrates, wounding, and other elicitors.

L2 ANSWER 8 OF 112 AGRICOLA DUPLICATE 1
TI Expression of a cellulase gene, celA, from the rumen fungus Neocallimastix patriciarum in Streptococcus bovis by means of promoter fusions.

L2 ANSWER 9 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Prior exposure to lipopolysaccharide potentiates expression of plant defenses in response to bacteria.

L2 ANSWER 10 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Cloning and characterization of multiple glycosyl hydrolase genes from Trichoderma virens.

L2 ANSWER 11 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Characterization of Alternaria alternata glucanase genes expressed during infection of resistant and susceptible persimmon fruits.

L2 ANSWER 12 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Recombination of Agrobacterium strains with bivalent-expression vectors containing Chitinase/Antifungal protein or Chitinase/beta-1,3-Glucanase genes.

L2 ANSWER 13 OF 112 AGRICOLA DUPLICATE 2
TI Characterization of a tissue-specific and developmentally regulated beta-1,3-glucanase gene in pea (Pisum sativum).

L2 ANSWER 14 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Development of large and opaque avocado somatic embryos: Effects of culture age, desiccation, and genotype.

L2 ANSWER 15 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI [Application of genetic transformation methods to Cuban rice varieties. Results of the introduction of genes conferring resistance to fungi and insects.
Original Title: Resultados en la aplicacion de las metodologias de transformacion genetica en variedades cubanas de arroz para la introduccion de genes de resistencia a hongos e insectos..

L2 ANSWER 16 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Expression of a Fibrobacter succinogenes 1,3-1,4-beta-glucanase in potato (Solanum tuberosum.

L2 ANSWER 17 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Gene pyramiding of recombinant antifungal genes in transgenic pea (Pisum sativum L.

L2 ANSWER 18 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Rice beta-glucanase enzymes and genes.

L2 ANSWER 19 OF 112 AGRICOLA DUPLICATE 3
TI Mutational analysis of beta-**glucanase genes** from the plant-pathogenic **fungus** Cochliobolus carbonum.

L2 ANSWER 20 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Molecular cloning, characterization and in vitro expression of a novel endo-1,3-beta-glucanase up-regulated by ABA and drought stress in rice (Oryza sativa L.

L2 ANSWER 21 OF 112 AGRICOLA DUPLICATE 4
TI WY-14,643 and other agonists of the peroxisome proliferator-activated receptor reveal a new mode of action for salicylic acid in soybean disease resistance.

L2 ANSWER 22 OF 112 AGRICOLA DUPLICATE 5
TI Expression of cmg1, an exo-beta-1,3-glucanase gene from Coniothyrium minitans, increases during sclerotial parasitism.

L2 ANSWER 23 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Assessment of stress gene expression in chestnut (Castanea sativa Mill.) upon pathogen infection (C. parasitica (Murr.) Barr) and wounding.

L2 ANSWER 24 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Mutant barley (1fwdarw3,1fwdarw4)-beta-glucan endohydrolases with enhanced thermostability.

L2 ANSWER 25 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.

TI Transgenic wheat plants: A powerful breeding source.

L2 ANSWER 26 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Expression of a **fungal** cellulase **gene** by beta-**glucanase** promoter of Streptococcus bovis.

L2 ANSWER 27 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Transgenic fungal resistant plants expressing chitinase and glucanase, process for obtaining, and recombinant polynucleotides for uses therein.

L2 ANSWER 28 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Process for obtaining fungal resistant plants with recombinant polynucleotides encoding beta-1,3-glucanase modified for apoplast targeting.

L2 ANSWER 29 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Effects of targeted replacement of the Tomatinase gene on the interaction of Septoria lycopersici with tomato plants.

L2 ANSWER 30 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Arabidopsis thaliana endo-1,4-beta-glucanase (cel1) promoter mediates uidA expression in elongating tissues of aspen (Populus tremula.

L2 ANSWER 31 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Studies of transgenic tobacco plants expressing beta-1,3-**glucanase** and chitinase **genes** and their potential for **fungal** resistance.

L2 ANSWER 32 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Antifungal chitin binding proteins and DNA coding therefor.

L2 ANSWER 33 OF 112 AGRICOLA DUPLICATE 6
TI The mycoparasite Ampelomyes quisqualis expresses exgA encoding an exo-B-1,3-glucanase in culture and during mycoparasitism.

L2 ANSWER 34 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Pyramiding of chitinase and **glucanase genes** for **fungal** resistance.

L2 ANSWER 35 OF 112 AGRICOLA DUPLICATE 7
TI Rapid transcript accumulation of pathogenesis-related genes during an incompatible interaction in bacterial speck disease-resistant tomato plants.

L2 ANSWER 36 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Isolation of a cDNA encoding a putative cellulase in the red claw crayfish Cherax quadricarinatus.

L2 ANSWER 37 OF 112 AGRICOLA DUPLICATE 8
TI Structure and expression properties of the endo-beta-1,4-**glucanase** A **gene** from the filamentous **fungus** Aspergillus nidulans.

L2 ANSWER 38 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Properties of the Macrophomina phaseolina endoglucanase (egl1) gene product in bacterial and yeast expression systems.

L2 ANSWER 39 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Metazoan cellulase genes from termites: Intron/exon structures and sites of expression.

L2 ANSWER 40 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Recent advances in biotechnology of rumen bacteria: Review.

L2 ANSWER 41 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Gene expression and growth requirements of Clavibacter xyli subspecies cynodontis.

L2 ANSWER 42 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Study of exo-beta-1,3-glucanase activity production by the yeast Pichia anomala in relation to its antagonistic properties against Botrytis cinerea on postharvest apples.

L2 ANSWER 43 OF 112 AGRICOLA DUPLICATE 9
TI EXG1p, a novel exo-beta 1,3-glucanase from the fungus Cochliobolus carbonum, contains a repeated motif present in other proteins that interact with polysaccharides.

L2 ANSWER 44 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Construction and properties of a deletion variant of the laminarinase (Lam A) from Thermotoga neapolitana and expression of the modified gene in protoplasts of Nicotiana plumbaginifolia.

L2 ANSWER 45 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Plant defence genes are induced in the pathogenic interaction between bean roots and Fusarium solani, but not in the symbiotic interaction with the arbuscular mycorrhizal fungus Glomus mosseae.

L2 ANSWER 46 OF 112 AGRICOLA DUPLICATE 10
TI Compost and compost water extract-induced systemic acquired resistance in cucumber and Arabidopsis.

L2 ANSWER 47 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Molecular characterization of the operon comprising the spoIV gene of Bacillus megaterium DSM319 and generation of a deletion mutant.

L2 ANSWER 48 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Immunolocalization and characterization of a beta-1,3-glucanase from sugar beet, deduction of its primary structure and nucleotide sequence by cDNA and genomic cloning.

L2 ANSWER 49 OF 112 AGRICOLA DUPLICATE 11
TI Genetic engineering of disease resistance in cereals.

L2 ANSWER 50 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Gene structure and a possible cytoplasmic location for (1fwdarw3)-beta-glucanase isoenzyme GI from barley (Hordeum vulgare.

L2 ANSWER 51 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Fungal resistant plants, process for obtaining fungal resistant plants and recombinant polynucleotides for use therein.

L2 ANSWER 52 OF 112 AGRICOLA
TI Sequencing of a 1,3-1,4-beta-D-glucanase (lichenase) from the anaerobic fungus Orpinomyces strain PC-2: properties of the enzyme expressed in Escherichia coli and evidence that the gene has a bacterial origin.

L2 ANSWER 53 OF 112 AGRICOLA DUPLICATE 12
TI Isolatiom and overexpression of a gene encoding an extracellular beta-(1,3-1,4)-glucanase from Streptococcus bovis JB1.

L2 ANSWER 54 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Highly thermostable endo-1,3-beta-glucanase (laminarinase) LamA from Thermotoga neapolitana: Nucleotide sequence of the gene and characterization of the recombinant gene product.

L2 ANSWER 55 OF 112 AGRICOLA DUPLICATE 13
TI cDNA clones encoding 1,3-beta-glucanase and a fimbrin-like cytoskeletal

protein are induced by Al toxicity in wheat roots.

L2 ANSWER 56 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Cloning and sequencing of a 1,3-1,4-beta-D-**glucanase** **cDNA** from the anaerobic **fungus** Orpinomyces sp. strain PC-2 and characterization of its translocation products.

L2 ANSWER 57 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI A method for recovery of Candida albicans DNA from larger blood samples and its detection by polymerase chain reaction on proteinase genes.

L2 ANSWER 58 OF 112 AGRICOLA DUPLICATE 14
TI Expression of specific (1 leads to 3)-beta-**glucanase** **genes** in leaves of near-isogenic resistant and susceptible barley lines infected with the leaf scald **fungus** (Rhynchosporium secalis).

L2 ANSWER 59 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Expression of a **bacterial** endo (1-4)-beta-**glucanase** **gene** in mammalian cells and post translational modification of the gene product.

L2 ANSWER 60 OF 112 AGRICOLA DUPLICATE 15
TI Endochitinase and beta-1,3-glucanase genes are developmentally regulated during somatic embryogenesis in Picea glauca.

L2 ANSWER 61 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI The kil gene of the ColE1 plasmid of Escherichia coli controlled by a growth-phase-dependent promoter mediates the secretion of a heterologous periplasmic protein during the stationary phase.

L2 ANSWER 62 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI N-acetylchitooligosaccharides elicit expression of a single (1 fwdarw 3)-beta-glucanase gene in suspension-cultured cells from barley (Hordeum vulgare.

L2 ANSWER 63 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Expression of a **bacterial** endo beta-1,3-**glucanase** **gene** under the control of CAMV 35S promoter in Nicotiana plumbaginifolia protoplasts.

L2 ANSWER 64 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Molecular cloning of the first metazoal beta-1,3 glucanase from eggs of the sea urchin Strongylocentrotus purpuratus.

L2 ANSWER 65 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Nucleotide sequence of a beta-1,3-glucanase isoenzyme II-A gene of Oerskovia xanthineolytica LL G109 (Cellulomonas cellulans) and initial characterization of the recombinant enzyme expressed in Bacillus subtilis.

L2 ANSWER 66 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Characterization of CenC, an enzyme from Cellulomonas fimi with both endo- and exoglucanase activities.

L2 ANSWER 67 OF 112 AGRICOLA DUPLICATE 16
TI Transgenic barley expressing a protein-engineered, thermostable (1,3-1,4-)-beta-glucanase during germination.

L2 ANSWER 68 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Analysis of a Thermotoga maritima DNA fragment encoding two similar thermostable cellulases, CelA and CelB, and characterization of the recombinant enzymes.

L2 ANSWER 69 OF 112 AGRICOLA DUPLICATE 17

TI Defence-related gene activation during an incompatible interaction between Stagonospora (Septoria) nodorum and barley (Hordeum vulgare L.) coleoptile cells.

L2 ANSWER 70 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Constitutive expression of an inducible beta-1,3-glucanase in alfalfa reduces disease severity caused by the oomycete pathogen Phytophthora megasperma f. sp medicaginis, but does not reduce disease severity of chitin-containing fungi.

L2 ANSWER 71 OF 112 AGRICOLA DUPLICATE 18
TI The effect of sense and antisense expression of the PR-N **gene** for beta-1,3-**glucanase** on disease resistance of tobacco to **fungi** and viruses.

L2 ANSWER 72 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Construction of Nicotiana tabacum L. transgenic plants expressing the **bacterial gene** for beta-1,3-**glucanase**: II. Transgenic plants expressing the beta-1,3-**glucanase gene** of Clostridium thermocellum represent a model for studying differential expression of stress response-related genes.

L2 ANSWER 73 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Construction of Nicotiana tabacum L. transgenic plants expressing the **bacterial gene** for beta-1,3-**glucanase**: I. Construction of vectors for transfection of plant cells and expression of the modified beta-1,3-**glucanase gene** from Clostridium thermocellum in tobacco protoplasts.

L2 ANSWER 74 OF 112 AGRICOLA DUPLICATE 19
TI Differential induction of chitinase and 1,3-beta-glucanase gene expression in tomato by Cladosporium fulvum and its race-specific elicitors.

L2 ANSWER 75 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Recombinant DNA coding for a novel protein having beta-1,3-**glucanase** activity, **bacteria** containing this **DNA** , transformed plant cells and plants.

L2 ANSWER 76 OF 112 AGRICOLA DUPLICATE 20
TI Molecular characterization and heterologous expression of an endo-beta-1,6-**glucanase gene** from the mycoparasitic **fungus**, Trichoderma harzianum.

L2 ANSWER 77 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Synergistic activity of chitinases and beta-1,3-glucanases enhances fungal resistance in transgenic tomato plants.

L2 ANSWER 78 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Sequence and transcriptional analysis of an endoglucanase gene from Ruminococcus albus AR67.

L2 ANSWER 79 OF 112 AGRICOLA DUPLICATE 21
TI A mutation in Arabidopsis that leads to constitutive expresson of systemic acquired resistance.

L2 ANSWER 80 OF 112 AGRICOLA
TI Enhanced protection against **fungal** attack by constitutive co-expression of chitinase and **glucanase genes** in transgenic tobacco.

L2 ANSWER 81 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Cf gene-dependent induction of a beta-1,3-glucanase promoter in tomato plants infected with Cladosporium fulvum.

L2 ANSWER 82 OF 112 AGRICOLA DUPLICATE 22
TI Primary structure and expression of mRNAs encoding basic chitinase and 1,3-beta-glucanase in potato.

L2 ANSWER 83 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI The genetic manipulation of the yeast Saccharomyces cerevisiae with the aim of converting polysaccharide-rich agricultural crops and industrial waste to single-cell protein and fuel ethanol.

L2 ANSWER 84 OF 112 AGRICOLA DUPLICATE 23
TI Expression of the Butyrivibrio fibrisolvens endo-beta-1,4-glucanase gene together with the Erwinia pectate lyase and polygalacturonase genes in Saccharomyces cerevisiae.

L2 ANSWER 85 OF 112 AGRICOLA DUPLICATE 24
TI Cloning of an endo-(1 leads to 4)-beta-**glucanase gene**, celA, from the rumen **bacterium** Clostridium sp. ('C. longisporum') and characterization of its product, CelA, in Escherichia coli.

L2 ANSWER 86 OF 112 AGRICOLA DUPLICATE 25
TI Purification and characterization of the Saccharomyces cerevisiae BGL2 gene product, a cell wall endo-beta-1,3-glucanase.

L2 ANSWER 87 OF 112 AGRICOLA DUPLICATE 26
TI Stress responses in alfalfa (Medicago sativa L). XVII. Identification of multiple hydrolases and molecular characterization of an acidic glucanase.

L2 ANSWER 88 OF 112 AGRICOLA DUPLICATE 27
TI Host response gene transcript accumulation in relation to visible cytological events during Erysiphe graminis attack in isogenic barley lines differing at the Ml-a locus.

L2 ANSWER 89 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Molecular cloning of a **gene** coding for beta-**glucanase** from Bacillus subtilis K4, antagonist to plant pathogenic **fungi**.

L2 ANSWER 90 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI Cloning and expression of a gene for an 87-kDa beta-1,3-glucanase of Bacillus circulans IAM1165 in Escherichia coli K-1.

L2 ANSWER 91 OF 112 AGRICOLA DUPLICATE 28
TI The function of vacuolar beta-1,3-glucanase investigated by antisense transformation. Susceptibility of transgenic Nicotiana sylvestris plants to Cercospora nicotianae infection.

L2 ANSWER 92 OF 112 AGRICOLA DUPLICATE 29
TI Molecular characterization of a pea beta-1,3-glucanase induced by Fusarium solani and chitosan challenge.

L2 ANSWER 93 OF 112 AGRICOLA DUPLICATE 30
TI Differential accumulation of mRNAs encoding extracellular and intracellular PR proteins in tomato induced by virulent and avirulent races of Cladosporium fulvum.

L2 ANSWER 94 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI **Bacterial** cell engineering by protoplast fusion and analysis of **glucanase genes**.

L2 ANSWER 95 OF 112 AGRICOLA DUPLICATE 31
TI Structure of a rice beta-**glucanase gene** regulated by ethylene, cytokinin, wounding, salicylic acid and **fungal** elicitors.

L2 ANSWER 96 OF 112 AGRICOLA DUPLICATE 32
TI Biochemical and molecular characterization of three barley seed proteins with antifungal properties.

L2 ANSWER 97 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI MOLECULAR CLONING IN LACTOBACILLUS-HELVETICUS BY PLASMID PSA-3 PVA-797 CO-INTEGRATE FORMATION AND CONJUGAL TRANSFER.

L2 ANSWER 98 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI INDUCTION OF BETA-1 3 GLUCANASE IN BARLEY IN RESPONSE TO INFECTION BY FUNGAL PATHOGENS.

L2 ANSWER 99 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI GENETIC MANIPULATION OF BACILLUS-AMYLOLIQUEFACIENS.

L2 ANSWER 100 OF 112 AGRICOLA DUPLICATE 33
TI cDNA cloning and characterization of a putative 1,3-beta-glucanase transcript induced by fungal elicitor in bean cell suspension cultures.

L2 ANSWER 101 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI DEVELOPMENT OF A MODEL PATHOGENESIS SYSTEM INVOLVING INFECTION OF ARABIDOPSIS-THALIANA BY PSEUDOMONAS-SYRINGAE.

L2 ANSWER 102 OF 112 AGRICOLA DUPLICATE 34
TI DNA sequence of a Fibrobacter succinogenes mixed-linkage beta-glucanase (1,3-1,4-beta-D-glucan 4-glucanohydrolase) gene.

L2 ANSWER 103 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI GENES FROM CELLVIBRIO-MIXTUS ENCODING BETA-1 3 ENDOGLUCANASE.

L2 ANSWER 104 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI MOLECULAR CLONING EXPRESSION AND CHARACTERIZATION OF ENDO-BETA-1 4 GLUCANASE GENES FROM BACILLUS-POLYMYXA AND BACILLUS-CIRCULANS.

L2 ANSWER 105 OF 112 AGRICOLA DUPLICATE 35
TI Tissue-specific and pathogen-induced regulation of a Nicotiana plumbaginifolia beta-1,3-glucanase gene.

L2 ANSWER 106 OF 112 AGRICOLA DUPLICATE 36
TI Evidence for a third structural class of beta -1,3-glucanase in tobacco.

L2 ANSWER 107 OF 112 AGRICOLA DUPLICATE 37
TI Molecular cloning and ethylene induction of mRNA encoding a phytoalexin elicitor-releasing factor, beta-1,3-endoglucanase, in soybean.

L2 ANSWER 108 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI ANALYSIS OF THE SYNTHESIS OF SEVERAL PATHOGENESIS-RELATED PROTEINS IN TOBACCO LEAVES INFILTRATED WITH WATER AND WITH COMPATIBLE AND INCOMPATIBLE ISOLATES OF PSEUDOMONAS-SOLANACEARUM.

L2 ANSWER 109 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI EXPRESSION IN ESCHERICHIA-COLI OF THE BACILLUS-CIRCULANS WL-12 STRUCTURAL GENE FOR BETA-1 3 GLUCANASE A.

L2 ANSWER 110 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
TI SEQUENCE ANALYSIS OF THE CLOSTRIDIUM-CELLULOLYTICUM ENDOGLUCANASE-A-ENCODING GENE CEL-CCA.

L2 ANSWER 111 OF 112 AGRICOLA DUPLICATE 38
TI Purification of (1 leads to 3)-beta-glucan endohydrolase isoenzyme II from germinated barley and determination of its primary structure from a cDNA clone.

L2 ANSWER 112 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.

TI PRIMARY STRUCTURE OF THE 1-3 1-4-BETA-D GLUCAN 4-GLUCOHYDROLASE FROM BARLEY HORDEUM-VULGARE CULTIVAR HIMALAYA ALEURONE.

=> d ibib ab 104

L2 ANSWER 104 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1990:197262 BIOSIS
DOCUMENT NUMBER: BA89:103933
TITLE: MOLECULAR CLONING EXPRESSION AND CHARACTERIZATION OF ENDO-BETA-1 4 GLUCANASE GENES FROM BACILLUS-POLYMYXA AND BACILLUS-CIRCULANS.
AUTHOR(S): BAIRD S D; JOHNSON D A; SELIGY V L
CORPORATE SOURCE: DEP. BIOL., UNIV. OTTAWA, OTTAWA, ONTARIO, CANADA K1N 6N5.
SOURCE: J BACTERIOL, (1990) 172 (3), 1576-1586.
CODEN: JOBAAY. ISSN: 0021-9193.
FILE SEGMENT: BA; OLD
LANGUAGE: English
AB Endo-.beta.-1,4-**glucanase genes** from Bacillus circulans and from B. polymyxa were cloned by direct expression by using **bacteriophage** M13mp9 as the vector. The enzymatic activity of the gene products was detected by using either the Congo red assay or hydroxyethyl cellulose dyed with Ostazin Brilliant Red H-3B. The B. circulans and B. subtilis PAP115 endo-.beta.-1,4-**glucanase genes** were shown to be homologous by the use of restriction endonuclease site mapping, DNA-DNA hybridization, S1 nuclease digestion after heteroduplex formation, and sodium dodecyl sulfate-polyacrylamide gel electrophoresis of the protein products. Analysis of the nucleotide sequence of 3.1 kilobase pairs of cloned B. polymyxa DNA revealed two convergently transcribed open reading frames (ORFs) consisting of 398 codons (endoglucanse) and 187 codons (ORF2) and separated by 374 nucleotides. The coding region of the B. polymyxa endoglucanse gene would theoretically produce a 44-kilodalton preprotein. Expression of the B. polymyxa endoglucanase in Escherichia coli was due to a fusion of the endoglucanase gene at codon 30 with codon 9 of the lacZ .alpha.-peptide gene. The B. polymyxa endoglucanase has 34% amino acid similarity to the Clostridium thermocellum celB endoglucanse sequence but very little similarity to endoglucanases from other Bacillus species. ORF2 has 28% amino acid similarity to the NH2-terminal half of the E. coli lac repressor protein, which is responsible for DNA binding.

=> d ibib ab 89

L2 ANSWER 89 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1994:351051 BIOSIS
DOCUMENT NUMBER: PREV199497364051
TITLE: Molecular cloning of a **gene** coding for beta-**glucanase** from Bacillus subtilis K4, antagonist to plant pathogenic **fungi**.
AUTHOR(S): Kim, Yong-Hwan (1); Koo, Bon-Sung (1); Oh, Sang-Soo (1); Park, Kyeong-Soo; Lim, Soung-Yeul; Ryu, Jin-Chang (1); Eun, Moo-Young (1)
CORPORATE SOURCE: (1) Agricultural Biotechnology Inst., RDA, Suwon Korea
SOURCE: RDA Journal of Agricultural Science Biotechnology, (1993) Vol. 35, No. 1, pp. 213-218.
DOCUMENT TYPE: Article
LANGUAGE: Korean
SUMMARY LANGUAGE: Korean; English

=> d ibib ab 102

L2 ANSWER 102 OF 112 AGRICOLA DUPLICATE 34

ACCESSION NUMBER: 90:68455 AGRICOLA
DOCUMENT NUMBER: IND90043112
TITLE: DNA sequence of a Fibrobacter succinogenes mixed-linkage beta-glucanase (1,3-1,4-beta-D-glucan 4-glucanohydrolase) gene.
AUTHOR(S): Teather, R.M.; Erfle, J.D.
CORPORATE SOURCE: Agriculture Canada, Ottawa, Ontario, Canada
AVAILABILITY: DNAL (448.3 J82)
SOURCE: Journal of bacteriology, July 1990. Vol. 172, No. 7. p. 3837-3841
Publisher: Washington, D.C. : American Society for Microbiology.
CODEN: JOBAAY; ISSN: 0021-9193
NOTE: Includes references.
DOCUMENT TYPE: Article
FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension
LANGUAGE: English
AB The **DNA** sequence of a mixed-linkage beta-**glucanase** (1,3-1,4-beta-D-glucan 4-glucanohydrolase [EC 3.2.1.73]) gene from Fibrobacter succinogenes cloned in Escherichia coli was determined. The general features of this gene are very similar to the consensus features for other gram-negative **bacterial** genes. The gene product was processed for export in E. coli. There is a high level of sequence homology between the structure of this glucanase and the structure of a mixed-linkage beta-glucanase from Bacillus subtilis. The nonhomologous region of the amino acid sequence includes a serine-rich region containing five repeats of the sequence Pro-Xxx-Ser-Ser-Ser-Ser-(Ala or Val) which may be functionally related to the serine-rich region observed in Pseudomonas fluorescens cellulase and the serine- and/or threonine-rich regions observed in Cellulomonas fimi endoglucanase and exoglucanase, in Clostridium thermocellum endoglucanases A and B, and in Trichoderma reesei cellobiohydrolase I, cellobiohydrolase II, and endoglucanase I.

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TITLE: SEQUENCE ANALYSIS OF THE CLOSTRIDIUM-CELLULOLYTICUM ENDOGLUCANASE-A-ENCODING GENE CEL-CCA.
AUTHOR(S): FAURE E; BELAICH A; BAGNARA C; GAUDIN C; BELAICH J-P
CORPORATE SOURCE: LAB. CHIM. BACTERIENNE, CENT. NATL. RECH. SCI., 31 CHEMIN JOSEPH AIGUIER, BP71, 13277 MARSEILLE CEDEX 9, FR.
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LANGUAGE: English
AB The nucleotide sequence of a Clostridium cellulolyticum endo-.beta.-1,4-**glucanase** (EGCCA)-encoding **gene** (celCCA) and its flanking regions, was determined. An open reading frame (ORF) of 1425 bp was found, encoding a protein of 475 amino acids (aa). This ORF began with an ATG start codon and ended with a TAA ochre stop codon. The N-terminal region of the EGCCA protein resembled a typical signal sequence of a Gram-positive **bacterial** extracellular protein. A putative signal peptidase cleavage site was determined. EGCCA, without a signal peptide, was found to be composed of more than 35% hydrophobic aa and to have an Mr of 50715. Comparison of the encoded sequence with other known cellulase sequences showed the existence of various kinds of aa sequence homologies. First, a strong homology was found between the C-terminal region of EGCCA, containing a reiterated stretch of 24 aa, and the conserved reiterated region previously found to exist in four Clostridium thermocellum endoglucanases and one xylanase from the same organism. This region was suspected of playing a role in organizing the cellulosome complex. Second,

an extensive homology was found between EGCCA and the N-terminal region of the large endoglucanase, EGE, from C. thermocellum, which suggests that they may have a common ancestral gene. Third, a region, which extended for 21 aa residues beginning at aa + 127, was found to be homologous with regions of cellulases belonging to bacilli, clostridia and Erwinia chrysanthemi.